

Marine Environments of the Caribbean

Scientists estimate that 80% of all “life forms” on Earth are found only in the ocean. Several phyla and thousands of species are found nowhere else on the planet. Coral reefs harbor diverse assemblages of corals, tunicates, molluscs, bryozoans, sponges, and echinoderms that are not represented in terrestrial systems. A small fraction of coral reef biodiversity is known and few deeper biological mysteries of these creatures' lives have been discovered.



Rocky coasts are an extreme environment.



Algal community on sand.



Fire Coral has become a dominant coral on reefs.



Little blue herons are common shore birds.



A small hawk waits for a meal.

The Caribbean hotspot is a diverse marine system including some 60 species of corals and about 1,500 species of fishes, 23% of which are Caribbean endemics. Coral reefs, seagrass beds, and mangroves shelter, feed, and nurture billions of larval and adult organisms. Seagrass beds have the highest rates of primary productivity around the world and represent an important habitat within the hotspot for endangered manatees and turtles. Elkhorn coral, the primary nearshore reef-builder was

decimated in the last two decades by hurricanes and disease. Recent studies link terrestrial microorganisms with several coral diseases, but the link to human activities is still being investigated.

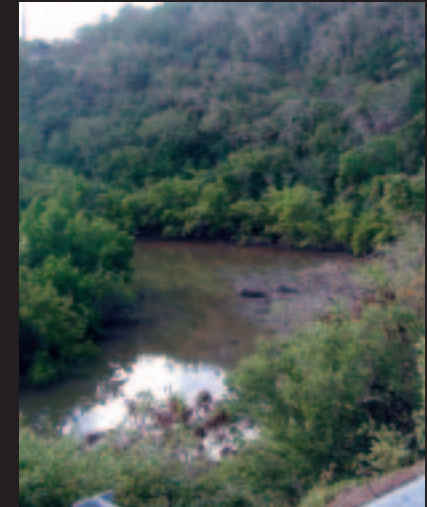
As a result of the unique structure, chemistry, and properties of marine creatures, their value in marine biotechnology—the development of new health and life-saving drugs—is growing into a tremendous business. The anti-viral drugs Ara-A and AZT and the anti-cancer agent Ara-C were developed from extracts of sponges found on Caribbean reefs. Sponges, that can regenerate from small pieces, are a promising group of organisms which have already yielded important products. In Japan, a leader in marine biotechnology, about 20% of the sponge species tested were found to contain biologically active compounds. Other products are under trial for use in treatment of breast cancer, liver cancer, tumors, and leukemia.

Seascapes, Landscapes, Biodiversity, and Humans

Coral reef ecosystems have enormous value as natural resources, with additional potential as a source of lifesaving and life-enhancing products, yet these facts are unknown to the general public and government policymakers. Unfortunately, global warming, poor and inappropriate land-use activities, commercial marine exploitation, disease, and natural catastrophes like hurricanes may eliminate these species long before we discover the miracles they hold. The place between the natural worlds of land and water is a sharing of space and blending of features that creates a unique, variable, and diverse environment. Here in the islands of the Caribbean, the influence of the sea envelops the land, creating a connected world from ridge to reef.



Waterlemon Cay, St. John with Little Thatch Cay and Tortola behind.



John's Folly Salt Pond, St. John.



Coral Bay sunrise.